

**What is claimed is:**

1. A differential permeometer comprising of;
  - a pair of flow systems, each said flow system being disposed for a flow of fluid there through;
  - a reservoir connected in common to said flow systems to receive a flow of fluid from each said system;
  - a fan for drawing fluid through said systems into said reservoir;
  - a pair of clamping devices, each said clamping device being disposed in;
  - a respective flow system to hold a porous sheet-like material sample across said respective system for a flow of fluid therethrough;
  - and a pair of orifice plates, each said plate being disposed in a respective flow system between said clamping device and said reservoir to create a measurable pressure drop in a fluid passing therethrough.
2. A velocity or flow rate indication or measurement device, each said plate being disposed in a respective flow system between said clamping device and said reservoir referenced in claim 1.
3. A differential permeometer as set forth in claim 1 which further comprises a pair of honeycomb structures, each said structure being disposed in a respective one of said systems between said orifice plate therein and said

reservoir for passage of a fluid therethrough. The honeycomb structures help ensure that flow through the reference tubes is laminar and steady, so that test measurements are accurate.

4. A differential permeometer as set forth in claim 1 further comprising a dual motorized screw drive disposed between said systems and connected to and between said pair of orifice plates for simultaneous movement hereof to adjust an orifice size thereof.

5. A differential permeometer as set forth in claim 1 further comprising a first pressure transducer positioned in one of said systems to measure a pressure drop across a test sample in said one system, a second pressure transducer positioned in said one system to measure a pressure drop across said orifice plate therein, a third pressure transducer positioned in the other of said systems to measure a pressure drop across said orifice plate therein, a fourth pressure transducer for measuring a differential pressure between said systems and a computer connected to each said transducer to receive a signal therefrom indicative of the pressure measured thereby and to calculate a differential permeability value of a sample in said one system in dependence on said signals.

6. A method for determining the permeability of a test sample comprising the steps of;

